OAH Docket No. 3-2500-16554-2
OFFICIAL SERVICE LIST AS OF 9/12/05

In the Matter of the Application of Great River Energy for a Certificate of Need for the Cambridge Peaking Plant

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PUC Docket No. ET-2/CN-05-347

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Great River Energy for a Certificate of Need for the Cambridge Peaking Plant	**FINDINGS OF FACT, CONCLUSIONS AND RECOMMENDATION**

The above-entitled matter came on for hearing before Administrative Law Judge Kathleen D. Sheehy on July 28, 2005, in the small hearing room of the Minnesota Public Utilities Commission ("Commission") in St. Paul, Minnesota.

Michael Bradley, Moss & Barnett, 4800 Wells Fargo Center, 90 South Seventh Street, Minneapolis, Minnesota 55402-4129, appeared for and on behalf of Applicant Great River Energy (GRE).

Karen Hammel, Assistant Attorney General, 1400 Bremer Tower, 445 Minnesota Street, St. Paul Minnesota 55101, appeared on behalf of the Department of Commerce (Department).

B. Andrew Brown, Dorsey and Whitney LLP, 50 South Sixth Street, Minneapolis, Minnesota 55402, appeared for and on behalf of Mankato Energy Center, LLC (Mankato Energy or MEC), a wholly-owned subsidiary of Calpine Corporation.

Bill Storm, formerly with the EQB and now with the Department, appeared on behalf of those agencies for the purpose of presenting evidence concerning GRE's site permit application.[1]

David L. Jacobson, 121 Seventh Place East, Suite 350, St. Paul, Minnesota 55101-2147, appeared on behalf of the staff of the Commission.

NOTICE

Notice is hereby given that, pursuant to Minn. Stat. § 14.61 and the Rules of Practice of the Commission and the Office of Administrative Hearings, exceptions to this Report, if any, by any party adversely affected, must be filed within 15 days of the mailing date hereof with the Executive Secretary, Minnesota Public Utilities Commission, 121 Seventh Place East, Suite 350, St. Paul, Minnesota 55101. Exceptions must be specific, and must be stated and numbered separately. Proposed Findings of Fact, Conclusions and Order should be included, and copies thereof must

[1] At the time GRE filed its application, the authority to site power plants resided with the Minnesota Environmental Quality Board (EQB). Effective July 1, 2005, the authority to site power plants was transferred to the Commission by Minn. Laws 2005 Ch. 97, Art. 3, § 17.

be served upon all parties. Replies to exceptions are not permitted. Oral argument before a majority of the Commission will be permitted to all parties requesting such argument who are adversely affected by the Administrative Law Judge's recommendation. Such request must accompany the filed exceptions, and an original and 15 copies of each document must be filed with the Commission.

The Commission will make the final determination of the matter after the expiration of the above-set forth period for filing exceptions, or after oral argument, if such is requested and had in the matter.

Further notice is hereby given that the Commission may, at its own discretion, accept or reject the Administrative Law Judge's recommendation and that said recommendation has no legal effect unless expressly adopted by the Commission as its final order.

STATEMENT OF ISSUES

1. Should the Commission grant a Certificate of Need (CON) for the 170 MW simple-cycle combustion turbine plant GRE proposes to build in Cambridge Township?

2. Should the Commission issue a Site Permit to locate the proposed plant in Cambridge Township?

The Administrative Law Judge concludes that the Commission should grant the CON and issue the Site Permit as requested by GRE.

Based upon all of the proceedings herein, the Administrative Law Judge makes the following:

FINDINGS OF FACT

Procedural History

1. GRE is a Minnesota not-for-profit cooperative based in Elk River, Minnesota. GRE was formed in 1999 when Cooperative Power and United Power Association formed a joint operating company to provide generation and transmission services to its 28 member cooperatives. These cooperatives in turn supply electricity and related services to more than 580,000 residential, commercial and industrial customers in Minnesota and Wisconsin.[2]

2. On February 28, 2005, GRE applied for a CON for a simple-cycle combustion turbine plant to be built at the site of its existing Cambridge Peaking Plant in in Cambridge Township, Isanti County. The accredited summer capacity of the Project would be 170 megawatts (MW).[3] The project is intended to address GRE's existing and future peaking resource needs. Peaking generation facilities only operate a small

[2] Ex. 1, § 1.1.
[3] Ex. 1, § 1.1

number of hours per year (usually between 500 to 1,000 hours). GRE anticipates that the facility would be operated during times of peak summer electrical demand and that its capacity would be between 5% and 10%.

3. The proposed facility is a large energy facility within the meaning of Minn. Stat. § 216B.2421, subd. 2(1).

4. On March 11, 2005, GRE filed a Site Permit Application with the EQB. Because the proposed plant would be fueled by natural gas, the project qualifies for alternative review under Minn. Stat. § 116C.575, subd. 2.

5. On March 17, 2005, the EQB passed a resolution authorizing a joint hearing on the site permit application with the PUC's hearing on the CON.[4]

6. By letter dated March 14, 2005, the chair of the EQB notified GRE that its application was accepted.[5]

7. On March 29, 2005, GRE filed additional information supplementing the CON Application.

8. GRE's public notice dated March 28, 2005, is included in the record,[6] but there is no affidavit or other evidence to substantiate that GRE sent a copy of the application by certified mail to Isanti County, the City of Cambridge, or Cambridge Township, or that notice was provided to property owners whose land is adjacent to the proposed site, as required by Minn. Stat. §§ 116C.575, subd. 4, and 116C.57, subd. 2b. As noted below, however, the EQB mailed notice of filing the application to the local units of government, and the project was well publicized in the local newspapers. Although notice to adjacent landowners is important, the record reflects that local officials and adjacent landowners were aware of the project and attended the public hearings. Under these circumstances the Administrative Law Judge finds that the error in providing notice, if any, was harmless and did not interfere with the public's right to be informed about the project.

9. On March 31, 2005, the EQB mailed the notice of filing the application and notice of a public meeting to participate in scoping the Environmental Assessment to persons on its general and project notification list, local government list, technical representatives, and PUC energy staff list. The public meeting was scheduled to take place on April 19, 2005, at the Community Hall Building, Isanti County Fairgrounds, 3101 Highway 95E, Cambridge, Minnesota 55008.[7]

10. Between March 28, 2005, and April 10, 2005, the GRE and the EQB published in the *Cambridge Star*, the *Scotsman*, and the *Isanti County News* a notice of

[4] EQB Ex. 5.
[5] EQB Ex. 4.
[6] EQB Ex. 6.
[7] EQB Ex. 8.

the filing of the application, a description of the proposed project, directions for obtaining a copy of the application, and a notice of the public meeting to be conducted on April 19, 2005.[8]

11. On April 8, 2005, the Commission issued an Order finding GRE's CON application to be substantially complete and authorizing a joint hearing on the CON and site permit applications pursuant to Minn. Stat. § 216B.243, subd. 4. On the same date the Commission issued a Notice and Order for Hearing referring the matter to the Office of Administrative Hearings.[9] GRE and the Department were the named parties in the Notice and Order for Hearing.

12. On April 11, 2005, the EQB published in *The EQB Monitor* notice of acceptance of the project and of the public meeting to be held at the Isanti County Fairgrounds on April 19, 2005.[10]

13. The EQB held the public meeting at the Isanti County Fairgrounds on April 19, 2005. The public was given until April 29, 2005, to submit written comments regarding the scope of the Environmental Assessment.[11]

14. On May 5, 2005, the chair of the EQB issued the scoping decision for the environmental assessment.[12]

15. On May 5, 2005, the EQB mailed copies of the scoping decision to each person on the EQB general notification list, local government list, project contact list, and technical representatives.[13]

16. The EQB's Environmental Assessment was completed on May 31, 2005.[14] The Environmental Assessment was posted on the EQB web page on or about May 31, 2005. On the same date, the EQB mailed a combined notice of the availability of the Environmental Assessment and notice of the public hearings to persons on the EQB general notice list, local government list, project contact list, and technical representatives.[15] On June 20, 2005, the EQB published a combined notice of the availability of the Environmental Assessment and notice of the public hearings in The EQB Monitor.[16]

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[8] EQB Ex. 9.
[9] The Commission published the Notice and Order for Hearing in the *State Register* in the April 18, 2005 issue at 29 S.R. 1211.
[10] EQB Ex. 10.
[11] EQB Ex. 13.
[12] EQB Ex. 13.
[13] EQB Ex. 14.
[14] EQB Ex. 15.
[15] EQB Ex. 18. Minn. Stat. § 116C.57, subd. 2b, required the EQB to send notice of the public hearing by certified mail to Isanti County, the City of Cambridge, and Cambridge Township. The EQB sent the notice by regular mail, as opposed to certified mail, to these entities. The Administrative Law Judge concludes that the use of regular mail was harmless and did not interfere with the public's right to be informed about the project.
[16] EQB Ex. 20.

17. On July 10, 2005, the EQB published notice of the public hearings in the *Scotsman*. On July 13, 2005, the EQB published notice of the public hearings in the *Star Tribune*, the *Pioneer Press*, and the *Cambridge Star*.[17]

18. On June 7, 2005, and June 24, 2005, GRE filed additional information supplementing the CON Application.

19. On July 26, 2005, public hearings were held at 3:00 and 7:00 p.m. in the Cambridge Community Building, Isanti County Fairgrounds, 310 Highway 95 NE, Cambridge, Minnesota. Approximately ten members of the public attended the hearings in Cambridge. There were limited questions concerning whether a road would be re-routed, whether a building permit or noise easement would be required, and some questions from an adjacent landowner regarding GRE's use of an existing easement for the transmission line and GRE's potential purchase of a noise easement.[18]

20. The evidentiary hearing was held July 28, 2005, at the Commission's offices in St. Paul. Exhibits 1-7, 9-46, and EQB Exhibits 1, 3-18, 20, and 22-23 were received into the record. After the hearing, comments from the DNR and Excelsior Energy were received.[19]

Parties to the Proceeding

21. After the matter was referred to the OAH, Mankato Energy petitioned to intervene as a party, as did Minnesota Power. Mankato Energy's petition to intervene as a party was granted; Minnesota Power was granted status as a participant.[20]

22. Mankato Energy is a wholly-owned subsidiary of Calpine Corporation. Calpine operates power projects in 28 states. In September 2004, the Commission issued an Order granting a CON to Mankato Energy for a "two-on-one" combined cycle natural gas-fired power plant in Mankato. The first phase of the Mankato Energy project is under construction, and 330 MW of its output under summer conditions has been committed to Xcel Energy. The second phase, which would produce approximately 310 MW under summer conditions, will not be built unless Mankato Energy successfully negotiates a contract to sell its output.[21] Mankato Energy was an unsuccessful bidder in response to GRE's Request for Proposals (RFP) for a purchased power alternative to this project. In this proceeding, Mankato Energy maintains that it could provide a more reasonable alternative to meeting GRE's need by completing its second phase of construction than the self-build option proposed by GRE.

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[17] EQB Ex. 23.
[18] Public Hearing Transcript, July 28, 2005, Vols. 1 at 16-24 & 2 at 17-30.
[19] These comments have been marked as Exhibits 47 and 48, respectively.
[20] Second Prehearing Order dated June 13, 2005.
[21] Tr. at 186; Ex. 41 (Morton Direct) at 5-7.

The Project

23. The proposed project would generate electricity using a simple-cycle combustion turbine generator. It is designed to provide a source of electricity to meet demand during peak consumption periods during the summer; the plant would not be accredited in the winter and is not needed for GRE's winter peak consumption. The total summer accredited output would be 170 MW. The estimated installed cost is $69 million, and the projected start date for plant operations is the summer of 2007. The existing 69-kV substation would have to be modified to accommodate the increase in electrical output. The substation bus feeds four existing 69-kV lines as well as the local distribution substation located at the site. Preliminary results from the MISO transmission studies indicate that sections of lines will need to be upgraded either through reconductoring or rebuilding at the existing 69-kV voltage.[22] The combustion turbine would be fueled by natural gas, which would be transported to the site by pipeline owned by Northern Natural Gas (NNG).[23]

24. The NNG pipeline originates in Texas, traverses up the Midwest, and runs just east of the metropolitan area. NNG is the major interstate pipeline that serves Minnesota customers and is the primary transporter for customers in the metropolitan area. The NNG pipeline at the Cambridge site is inter-connected with the Viking pipeline, which is a large interstate pipeline delivering Canadian gas to Minnesota and Wisconsin. There is an exchange point between NNG and Viking near Cambridge. NNG also interconnects with Great Lakes Pipeline, which is a large interstate pipeline capable of delivering Canadian gas to Minnesota at Carlton, Minnesota. Gas delivered into NNG by Viking and Great Lake flows southward toward Cambridge and into the Twin Cities.[24]

CERTIFICATE OF NEED

Statutory and Rule Criteria

25. GRE proposes to construct a 170 MW combustion turbine plant. Construction of any electric power generating plant with a capacity of 50,000 kilowatts or more requires a CON from the Commission.[25]

Renewable Alternatives to the Proposed Project

26. The Commission may not issue a CON for a large energy facility that generates power by means of a nonrenewable energy source unless the applicant has explored the possibility of generating power by means of renewable energy sources, and the applicant has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source.[26]

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[22] Ex. 1, § 3.12 & Appendix D.
[23] Ex. 1, §§ 2.1 3.0, 3.12 & Appendix D, 3.6.1; Ex. 31 (Rakow) at 3.
[24] Ex. 32 (Griffing) at 6-7; Ex. 30 (Sulzer) at 2-3.
[25] Minn. Stat. §§ 216B.243, subd. 2; 216B.2421, subd. 2(1).
[26] Minn. Stat. § 216B.243, subd. 3(a).

Hydropower, wind, solar, geothermal, and biomass are considered renewable energy resources.[27]

27. GRE and the Department determined that the following objectives were reasonable in analyzing whether renewable resources could meet GRE's needs:

(a) Applicability – can the alternative meet GRE's demand and the associated reserve requirements during peak consumption periods?

(b) Availability – can the alternative provide a 170 MW commercially proven facility for the 2007 summer season?

(c) Reliability – can the alternative enhance the reliability of the bulk electric system?

(d) Environmental Impacts – does the alternative minimize environmental and community impacts?

(e) Cost and Economic Effects – is the alternative is the least-cost alternative, and does it provide economic benefits to the community?[28]

28. GRE did not consider geothermal energy because there are no utility-scale sites in Minnesota for that form of renewable energy.[29]

29. According to the U.S. Department of Energy (DOE), there is a total undeveloped capacity of 137 MW of hydropower in Minnesota, but no Minnesota sites have greater than 50 MW of potential capacity. There are no sites with more than 50 MW of potential capacity in Wisconsin or North Dakota. There are three hydropower sites in South Dakota on the Missouri River with a potential capacity greater than 50 MW, and there is one in Iowa on the Mississippi River. There are also significant undeveloped hydropower resources in Manitoba.[30]

30. Hydropower could meet GRE's demand, and it would likely meet the reliability, environmental, and cost factors identified above; however, the length of time needed for construction of hydropower projects means it would not be available in time to meet GRE's needs by the 2007 summer season.[31]

31. In general, both wind and solar generation are intermittent in nature and are unsuitable alternatives for a peaking facility.[32]

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[27] Minn. Stat. § 216B.2422, subd. 1(c).
[28] Ex. 1, §4.1; Ex. 37 (Fang) at 7.
[29] Ex. 37 (Fang) at 4.
[30] Ex. 37 (Fang) at 8-9.
[31] Ex. 37 (Fang) at 9.
[32] Ex. 1, §§ 4.2.1 and 4.2.5; Ex. 37 (Fang) at 9.

32. Construction of 170 MW of solid fuel biomass capacity by 2007 is not feasible. Furthermore, solid fuel power plants have operating characteristics consistent with baseload resources and would not offer a cost effective peaking alternative.[33]

33. GRE also examined using an ethanol-fueled facility as a renewable energy alternative. There are both technical and economic drawbacks to this alternative. The technical concerns include manufacturer reluctance, untested technology, higher emissions of certain pollutants, fuel handling problems, maintenance issues, and less efficiency.[34]

34. Based on the project objectives, there are no reasonable renewable alternatives that are available in the necessary timeframe that would reliably and economically meet peaking resource needs.[35]

Innovative Energy Projects

35. Innovative energy projects must also be considered as a supply option in lieu of a fossil-fuel generation facility.[36] Excelsior Energy filed comments stating that an innovative energy project cannot meet an in-service date of 2007, and the substantial capital costs involved with development and construction of an innovative energy project, along with the low capacity factor assumed in GRE's application, make an innovative energy project unsuitable to meet GRE's need.[37]

Minn. Rule pt. 7849.0120 Criteria

36. Minn. Rules pt. 7849.0120 provides that a CON must be granted to the applicant if:

A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:

(1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;

(2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;

(3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;

[33] Ex. 37 (Fang) at 9; Ex. 1, § 4.2.2.
[34] Ex. 1, § 4.2.3.
[35] Ex. 1, § 4.6; Ex. 37 (Fang) at 8-10.
[36] Minn. Stat. § 216B.1694, subd. 2(4).
[37] Ex. 48, Comments of Excelsior Energy filed July 28, 2005.

(4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and

(5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:

(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;

(2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;

(3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and

(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:

(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

(2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;

(3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and

(4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and

D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

A. Effects on Future Adequacy, Reliability, or Efficiency of Energy Supply

(1) Accuracy of the Forecast Demand for the Type of Energy Supplied by the Facility

37. GRE's forecast in the CON application is based on GRE's 2003 Integrated Resource Plan (IRP), which was accepted by the Commission in Docket No. E-002/CN-03-974.[38] The demand data in GRE's 2003 IRP were derived from GRE's 2002 Long Range Load Forecast, which was approved by the Rural Utilities Service.[39] In its simplest terms, GRE's CON application compared its forecasted demand against its accredited capacity, which demonstrated a need for the additional 170 MW.[40] GRE estimates that the plant will have a capacity factor of between 5 and 10 percent.[41] The only plants capable of operating efficiently with such a small capacity factor are peakers. An intermediate facility is one intended to operate between 20 and 70 percent of the time (which would be two to seven times longer than would be required by the GRE facility).[42]

38. Mankato Energy contends that GRE has failed to substantiate that the type of power it needs is peaking power, as opposed to intermediate power. Mankato Energy points to GRE's 2003 IRP, in which GRE identified a combined cycle 586 MW intermediate resource as the least cost plan to meet its needs;[43] however, the cost difference calculated at that time between a combined cycle and a combustion turbine plant was less than 1 percent over a 15-year planning horizon.[44]

39. GRE subsequently contracted with Minnesota Power to purchase 130 MW of baseload power, plus MAPP planning reserves, along with 45 MW of intermediate power, plus MAPP planning reserves. In addition, GRE purchased 100 MW of wind power. GRE filed a 2004 IRP update to reflect these purchases.[45]

40. Based on the purchases of baseload and intermediate power from Minnesota Power, and based on the wind power purchases, GRE reevaluated its forecasted demand compared to its accredited capacity. The 2004 IRP update reflects GRE's conclusion that a peaking facility, and more specifically a 170 MW combustion turbine, was the appropriate plant to meet the expected peak demand deficiency.[46]

41. During these proceedings the Department requested updated forecasting data from GRE, which GRE did not have because it had not yet completed its 2004 Long Range Load Forecast. GRE provided the Department with actual usage data for 2003 and 2004. Based on that information, and after making certain other adjustments, the

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[38] Ex. 1, § 2.1; Ex. 34 (Ham) at 2.
[39] Ex. 1, section 2.1.
[40] Tr. at 60.
[41] Ex. 1, Section 3.7.1.
[42] Tr. at 181-82.
[43] Tr. at 124.
[44] Tr. at 51; Tr. at 203-05.
[45] Ex. 46 (Collins) at 3-4.
[46] Tr. at 44-45, 58, 60; Ex. 46 (Collins) at 3-4.

Department determined that GRE had not overstated its need.[47] The Department and GRE agreed to meet outside of these proceedings to discuss GRE's forecasting methodologies.[48]

42. GRE's forecast of need in the CON, as adjusted by the Department and as supplemented by actual usage data, is sufficiently accurate to conclude that GRE has a need for at least 170 MW of peaking power.[49]

43. While GRE's application is based on its 2003 IRP, GRE contends that its conclusions as to the need for a 170 MW combustion turbine are supported by GRE's 2005 IRP (which was filed on June 30, 2005, and is being evaluated in Docket No. ET-2/RP-05-1100). According to the 2005 IRP, GRE will not need to acquire permanent additional intermediate capacity until 2009 or 2010.[50]

44. Mankato Energy disputes that the 2005 IRP supports GRE's forecast demand for peaking power. It maintains that GRE should have used actual cost data from Mankato Energy's bids, as opposed to generic cost data, in the IRP modeling process. In response, GRE maintains that additional modeling based on actual data would be too expensive and that generic data should be used in the resource planning process, because it is intended to be an open process not limited by use of trade secret data. The Department contends that it is not appropriate to make this determination in a CON proceeding. The Administrative Law Judge agrees with the Department and concludes that the issue whether actual or generic cost data should be used in the IRP process is one that is more properly raised in the 2005 IRP docket. The 2005 IRP is being evaluated by the Department and is subject to approval by the Commission; it is premature to use GRE's 2005 IRP to support either party's position in this proceeding.

45. The Commission approved the forecast contained in GRE's 2003 IRP, and this forecast, as adjusted by the Department and as supplemented by actual usage data, is sufficiently accurate to support GRE's determination that it needs 170 MW of peaking power.[51] GRE has proved by a preponderance of the evidence that its need is primarily for capacity, as opposed to energy, and that a peaking resource is an appropriate facility to meet this need. GRE does not need the production capability of an intermediate resource such as Mankato Energy's second-phase facility.

(2) Effects of Conservation Programs

46. There are no significant conservation programs that might affect the need for the proposed project.[52]

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[47] Tr. at 135.
[48] Ex. 22 (Pritchard) at 2. An applicant for a CON may use a forecast methodology of its own choosing, with due consideration given to cost, staffing requirements, and data availability. An applicant's forecast is subject to tests of accuracy, reasonableness, and consistency. *See* Minn. R. 7849.0270, subp. 3.
[49] Ex. 34 (Ham) at 10.
[50] Ex. 15 (Beck Rebuttal) at 4; Ex. 46 (Collins) at 3-4.
[51] Ex. 34 (Ham) at 10; Ex. 31 (Rakow Direct) at 12; Tr. at 124.
[52] Ex. 34 (Ham) at 9-10.

(3) Effects of Promotional Practices

47. GRE has not conducted any promotional activities that have significantly contributed to the need for the proposed project.[53]

(4) Ability of Current Facilities or Facilities Not Requiring Certificates of Need to Meet Future Demand

48. The primary alternatives to the proposed project that would not require certificates of need are power purchases from existing facilities inside or outside of Minnesota, planned facilities outside Minnesota, or construction of Minnesota facilities that are small enough not to require certificates of need. New facilities that are small enough not to require a certificate of need would have to be numerous. The economies of scale in the electric industry make this an uneconomic alternative. Therefore, facilities that do not require certificates of need cannot meet the identified demand.[54]

(5) The Effect of the Proposed Facility (or a Suitable Modification) in Making Efficient Use of Resources

49. The proposed project would utilize existing transmission lines and NNG's existing pipeline system as its source of natural gas.[55]

50. The natural gas would be transported through two existing 16-in. and 12-in. pipelines owned by NNG, and a new 0.5 mile lateral pipeline would be constructed connecting to both lines. There is sufficient natural gas capacity available to reliably serve the proposed project's summer needs.[56]

51. The site would have two water storage tanks, with one 300,000-gallon tank used to store raw water and one 200,000-gallon tank to store demineralized water.[57] The compressor wash wastewater would be stored in an on-site tank, off-loaded into tanker trucks, and hauled to a municipal wastewater treatment plant for ultimate treatment and disposal. Some of the wastewater (except the compressor wash wastewater and sanitary wastewater) from the site would be processed through an oil/water separator and then pumped to an on-site retention pond and discharged to an adjacent ditch that would likely flow into Beckins Creek, which discharges to the Rum River. GRE will seek a wastewater permit from the Minnesota Pollution Control Agency (MPCA) for the retention pond.[58]

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[53] Ex. 1, § 2.4; Ex. 34 (Ham) at 10.
[54] Ex. 31 (Rakow) at 12.
[55] Ex. 1, § 2.4, 3.6.1.
[56] Ex. 32 (Griffing) at 12-13; Ex. 30 (Sulzer Rebuttal) at 4.
[57] Ex. 1, § 3.4.
[58] Ex. 1, § 3.15.1.

52. With regard to the requirements of Minn. R. 7849.0120, Item A, GRE has demonstrated by a preponderance of the evidence that the probable result of denial of the Certificate of Need application would be an adverse effect upon the future adequacy, reliability and efficiency of energy supply to GRE's customers, the people of Minnesota and neighboring states.

B. Has a More Reasonable and Prudent Alternative to the Facility Been Demonstrated by a Preponderance of the Evidence on the Record?

53. Before deciding to proceed with the proposed project, GRE examined the following alternatives: (a) conservation and energy efficiency; (b) oil-fired combustion turbine, simple cycle; (c) combined cycle combustion turbine; (d) coal fired technologies; (e) purchased power; (f) new transmission; (g) customer-owned distributed generation; (h) demand side management (DSM); (i) emerging technology alternatives; and (j) upgrading existing resources.[59]

(1) Appropriateness of the Size, Type and Timing of the Alternatives

54. GRE's energy conservation goals, existing load management and energy conservation programs, other conservation measures considered, future load management and conservation plans, some conservation ideas that have not been implemented, its conservation accomplishments, and the cost of the conservation programs are outlined in Ex. 1, Appendix C.

55. GRE has reduced its summer peak demand in 2004 by approximately 300 MW, primarily through load management, conservation measures and customer owned generation. DSM is expected to further reduce demand by another 16 MW in 2005. While these programs have delayed the need for additional peaking capacity, additional participation in these programs cannot entirely replace the 170 MW of need by 2007.[60]

56. Conservation is not efficient for purposes of reducing peak demand for energy.[61]

57. A fuel oil-fired CT alternative could be constructed in a year or less; however, its permitting process also takes about a year and would need to be completed before the start of construction. Therefore, the fuel oil CT fails the timing criterion.[62]

58. A natural gas-fired combined cycle facility would take 24 months to construct and, therefore, could not meet the timing criterion. In addition, the combined cycle is not well suited to meet the requirements of a peaking facility because capital costs are higher.[63]

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[59] Ex. 1, § 4.4; Ex. 37 (Fang) at 15.
[60] Ex. 1, § 4.3; Ex. 34 (Ham) at 9-10.
[61] Ex. 37 (Fang) at 18.
[62] Ex. 37 (Fang) at 19.
[63] Ex. 1, § 4.4.4; Ex. 37 (Fang) at 17, 19.

59. Coal-fired technologies fail to meet the primary objectives due to the lengthy time needed to site, permit and construct them as well as inappropriate operating characteristics.[64]

60. GRE analyzed the purchased power market by means of a request for proposals (RFP) issued on March 2, 2004. The RFP requested proposals for both intermediate and peaking resources.[65] GRE received 31 proposals from 17 different responders, and all but five of the proposals relied on new generation.[66] Mankato Energy submitted four bids, two of which were described as peaking, one was described as intermediate, and one was described as a combined intermediate/peaking proposal.[67]

61. Mankato Energy would use a 320 MW intermediate facility to serve GRE's 170 MW of peaking requirements. While a portion of the Mankato Energy plant is designed to operate like a peaker, there is not enough remaining capacity from that portion of the plant to meet GRE's needs.[68] If no additional contracts for its remaining intermediate output are negotiated, Mankato Energy was equivocal as to whether it would actually complete construction of the second phase of the project to meet GRE's needs, or whether it would simply purchase the needed energy from MISO.[69] GRE could purchase energy from MISO itself; however, GRE has concluded that this is not a sufficiently reliable alternative to meet GRE's demand for 170 MW of peaking power.

62. Mankato Energy could also provide ancillary services to GRE and, more specifically, capacity that could be used when wind generation is unavailable; however, these services are no longer of individual value as MISO follows changes to load and generation from a regional perspective.[70]

63. New transmission is not a true alternative to generating resources in many instances. Because of the length of time required to construct new bulk transmission facilities and regulatory uncertainties, particularly surrounding cost recovery, new transmission lines are not a reasonable alternative to meet GRE's immediate needs. Construction time for a transmission line of significant length, which is the focus of this alternative, would probably require a year or more, and it would require about one year to obtain site permits. Therefore, the transmission alternative would not meet the timing criterion.[71]

64. GRE currently has approximately 116 MW of customer-owned generation in place, which represents the capacity benefit from these generators in the summer season. GRE anticipates the addition of 17 MW of customer-owned generation by

[64] Ex. 1, § 4.4.4. ; Ex. 37 (Fang) at 14.
[65] Ex. 1, § 4.4.1.
[66] Ex. 1, § 4.4.1.
[67] Ex. 26 (Selander Rebuttal) at 12, SS-1.
[68] Tr. at 177.
[69] Tr. at 177-82.
[70] Ex. 25 (Selander Rebuttal) at 13; Tr. at 69.
[71] Ex. 1, § 4.4.3; Ex. 37 (Fang) at 20.

2006.[72] Timing would be a concern, as it would require more than 70 diesel generator sets of 2 MW to be installed before the summer of 2007.[73] And because the distributed generation is customer-owned, the timing of any construction would be outside of the control of GRE. There would be no guarantee that 170 MW of summer capacity would be built by 2007.[74]

65. GRE examined emerging technologies as alternatives to the proposed roject, including fuel cells, pumped storage hydroelectric, compressed air energy storage, battery energy storage and superconducting magnets. None of these alternatives meet the Project objectives, either because of the immature state of their development or their inappropriateness for peaking application at this time.[75]

66. GRE has currently achieved a peak summer demand reduction of 300 MW and expects to add another 16 MW to the total in the summer of 2005. GRE does not expect these reductions to replace the 170 MW need.[76] Since DSM programs typically take several years to deliver maximum results, this alternative would not meet the Project's time criteria.[77]

67. GRE identified three possible future upgrades that could add a total of approximately 42.1 to 57.9 MW. This alternative could not supply the additional 170 MW of summer peaking capacity before the summer of 2007.[78]

(2) Cost of Proposed Facility and Energy to be Supplied Compared to Proposed Alternatives

68. Economic cost comparisons between the Project fueled by natural gas, fuel oil and ethanol show that the natural gas alternative is the most cost effective.[79]

69. GRE plans to continue to expand its DSM efforts beyond current programs, but it would not be possible to achieve the load relief necessary to meet capacity needs by the summer of 2007.[80]

70. With regard to purchased power alternatives, GRE screened the responses to its RFP in two steps. First, GRE evaluated the proposals on the basis of geographic proximity, developer experience and expertise, resource type, GRE business experience with the responder, certain price elements, and responsiveness to the RFP. The proposals submitted by GRE, Mankato Energy, and a second developer survived this first screening step. Second, the proposals that passed this initial screen were subjected

[72] Ex. 1, § 4.4.5.
[73] Ex. 1, § 4.4.5.
[74] Ex. 37 (Fang) at 20.
[75] Ex. 1, § 4.4.6.; Ex. 37 (Fang) at 18.
[76] Ex. 1, § 4.3 and Appendix C, §§ C.2 and C.3.
[77] Ex. 37 (Fang) at 20.
[78] Ex. 1, § 4.4.2.2; Ex. 37 (Fang) at 20.
[79] Ex. 1, § 4.2.3 and 4.5, Table 4-4; Ex. 37 (Fang) at 28-43.
[80] Ex. 1, Appendix C.2; Ex. 37 (Fang) at 21.

to a more extensive cost and risk analysis. Because the proposals had different price structures, GRE calculated an "all-in" price on a dollar-per-MW basis for each option that included all fixed, variable, and fuel costs at two different annual capacity factors (5% and 10%).[81] This analysis showed that GRE's self-build proposals were the lowest cost alternatives, the other developer's proposals were second, and Mankato Energy's lowest cost proposal came in third.[82] Mankato Energy submitted an additional offer, which was presented as an offer for intermediate capacity, but it was not materially different in price from Mankato Energy's earlier offer.[83]

71. Mankato Energy did not supply any information about what, if any, upgrades to the transmission network would be required in order to have Mankato Energy supply purchased power to GRE.[84] GRE did not include this cost in its calculation of Mankato Energy's "all-in" price. If it had, the price differential would likely have been greater.[85]

(3) The Effects of the Proposed Facility Upon the Natural and Socioeconomic Environments Compared to the Effects of Reasonable Alternatives

72. GRE compared air emissions from the proposed project to estimated emissions from use of fuel oil and ethanol.[86] The proposed project would have lower emissions than the fuel oil alternative and lower emissions than could be estimated for an ethanol-fueled alternative.[87] The proposed project would meet GRE's projected needs at a lower cost with less environmental impact than the fuel oil and ethanol alternatives.[88]

73. Under normal operating conditions, the proposed project would use significantly less water than the ethanol and fuel oil alternatives.[89]

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[81] Ex. 26 (Selander Rebuttal) at 5-7, SS-1.
[82] Ex. 26 (Selander) at SS-1. Mankato Energy included a rate of return of between 8% and 15% in its proposals to GRE. *See* Tr. 173. Because it is a cooperative, GRE's proposals, on the other had, included no rate of return. *See* Tr. at 22.
[83] Ex. 25 (Selander Rebuttal) at 13.
[84] Ex. 25 (Selander Rebuttal) at 14.
[85] Mankato Energy argues that GRE cannot establish that its proposal is the least-cost alternative because its review of the proposals was not "transparent." It also contends that GRE should have used a present value rate of return (PVRR) analysis, as is used in the resource planning process, instead of GRE's "all-in" calculation of cost. GRE has provided all the information necessary to conclude that its review of the proposals was reasonable, *see* Ex. 39 (Fang) at 3, and there is no requirement that the expensive modeling used for resource planning purposes be used to evaluate purchased power alternatives. In the absence of some reason more compelling than the desire to promote transparency, the Administrative Law Judge cannot say that a PVRR analysis should have been used here.
[86] Ex. 1, Table 4-3.
[87] Ex. 1, Table 4-3.
[88] Ex. 37 (Fang), Table 12.
[89] Ex. 1, Table 4-3.

74. The project would be located on land that is currently used for utility operations. Adjacent property is used for agricultural and transportation purposes.[90]

75. The proposed Project would use existing natural gas pipelines.[91] A plant using fuel oil or ethanol would mean increased traffic in and out of the facility due to fuel deliveries.[92]

76. Mankato Energy's air emissions would generally be much lower than the emissions from the Cambridge facility, as combined cycle plants are typically equipped to provide energy more efficiently than combustion turbine peaking plants.[93] This equipment is cost-effective when the facility is operated on an intermediate basis (20% to 70% of the time), but is not cost-effective when the facility operates only for peak demand (as is estimated here, between 5% and 10% of the time) because there are fewer kilowatt-hours over which to spread the fixed costs.[94]

77. GRE compared the Cambridge plant's emissions to the Mankato Energy plant's emissions, using the environmental externality values developed by the Commission. Using either the urban or rural externality values, the proposed project would cost less than the lowest-cost Mankato Energy alternative.[95]

78. Mankato Energy's facility will use reclaimed water from a local wastewater treatment plant for processing and cooling; GRE's proposed project will use groundwater for these purposes. There is no evidence that GRE's use of groundwater will adversely impact the aquifer, regional water supplies, or any existing potable wells in the area.[96]

79. The State of Minnesota and Isanti County would receive income and sales taxes from the construction of the Project.[97]

80. The proposed project would utilize approximately 75 skilled craft workers for the construction, lasting approximately one year.[98] The Project would create 2 to 3 full time equivalent jobs during operation.[99]

81. The proposed project would benefit the community in that GRE's members would continue to supply reliable power to support economic growth in the region.[100]

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[90] Ex. 1, § 3.23.
[91] Ex. 1, § 3.6.1; Ex. 41 (Griffing) at 6-7.
[92] Ex. 1, Table 4-3.
[93] Ex. 46 (Morton) at 5.
[94] Ex. 46 (Morton Direct) at 4-5; Ex. 1 at 1.
[95] Ex. 26 (Selander Rebuttal) at 14-15; Tr. 103-05.
[96] EQB Ex. 15, § 6.8.
[97] EQB Ex. 3, section 4.5.4; EQB Ex. 15, section 6.7.
[98] Ex. 3, § 3.8; EQB Ex. 3, § 4.5.4; EQB Ex. 15, §6.7.
[99] Ex. 1, § 3.8.
[100] Ex. 1, § 6.3.

(4) The Expected Reliability of the Proposed Facility Compared to Reasonable Alternatives

82. Because the proposed project and the fuel oil and ethanol alternatives use similar technology, the proposed project should be at least as reliable as the fuel oil and ethanol fuel alternatives.[101]

83. GRE determined that Mankato Energy's proposal, in addition to being more costly, was less reliable than the proposed project based on concerns about Calpine's credit risk. Calpine has had a below investment-grade bond rating for all but four months of its existence.[102] Bond ratings below investment grade indicate a higher risk of the company going into bankruptcy.

84. GRE's principal lender, the Rural Utilities Service (RUS), requires GRE to solicit competitive bids to supply its energy needs. GRE is required to compare not only the economics of the bids, but to evaluate the risks involved with each bid. In order to protect RUS loan security, RUS expects GRE to select an alternative (project or agreement) that is economical and has a low risk profile. RUS prefers that the prospective suppliers have a minimum of an investment-grade credit rating. If RUS determines that the selected alternative has a high risk profile, RUS would require some type of additional credit assurance.[103]

84. Mankato Energy contends that concerns about its credit could be minimized in a variety of ways, including the use of a letter of credit, which GRE could use to purchase power if Mankato Energy failed to deliver the necessary energy. If drawn upon in a manner that Mankato Energy deemed inappropriate, however, this process could result in litigation and would not ensure that power was available when needed.[104]

85. Mankato Energy also suggested that GRE could use step-in rights and other subordination rights to protect itself in the event Mankato Energy or Calpine filed for bankruptcy or failed to deliver necessary energy.[105] These are contractual rights that would be subject to challenge and possible disallowance in bankruptcy. In addition, Xcel Energy already has step-in rights to the portion of the plant that includes the operational controls over the portion of the plant that GRE would operate in a step-in situation.[106] Step-in rights may be inadequate where more than one customer is able to exercise those rights.[107]

86. Finally, Mankato Energy proposed that use of a limited liability company with a "ring fence around the entity" could resolve the potential bankruptcy issue.[108]

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[101] Ex. 37 (Fang) at 44.
[102] Tr. at 160, 164; Ex. 25 (Selander Rebuttal) at 10, Ex. SS-2.
[103] Ex. 25 (Selander Rebuttal) at 11.
[104] Tr. at 188-90.
[105] Tr. at 164.
[106] Tr. at 166.
[107] Ex. 25 (Selander Rebuttal) at 10.
[108] Tr. at 191.

Mankato Energy, as a wholly owned subsidiary, does not have independent capital, and could go bankrupt itself. In addition, Mankato Energy is an asset of Calpine and, therefore, could potentially be sold in bankruptcy to meet Calpine's debts.

88. These options might well be appropriate or be given more weight had Mankato Energy been the low bidder, but its proposals were not competitive with either the bids of the other developer or with GRE's self-build proposal. With regard to the requirements of Minn. R. 7849.0120, Item B, Mankato Energy has failed to prove by a preponderance of the evidence that its proposal would provide a more reliable, reasonable, or prudent alternative to the project proposed by GRE.

C. Whether the Benefits of the Proposed Facility to Society Are Compatible with Protecting the Natural and Socioeconomic Environments, including Human Health

(1) The Relationship of the Proposed Facility to Overall State Energy and Capacity Needs

89. GRE is a member of the Mid-Continent Area Power Pool (MAPP) with load responsibility as part of the reserve sharing pool for MAPP members. The generation reserve sharing pool concept is a key reason why MAPP was formed, for by sharing generation reserves in a pool, individual members can carry lower generation reserves than if they were not members of the pool. MAPP requires that members maintain 15 percent more capacity than their peak load to ensure regional electric system reliability. A delay in the project could result in GRE not having enough capacity to meet its MAPP peak load obligation. MAPP requires any utility not meeting this requirement to purchase capacity at $45,000 – $90,000 per MW of deficit. Therefore, a 100 MW deficit would result in a penalty of $4.5 – $9.0 million for each season in which this occurs, which would most likely be summer only.[109]

90. Electric system reliability is complex and is dependent upon adequate generation and transmission capacity. GRE's neighboring systems and other pool members could experience lower reliability if this project were delayed. Conversely, additional generation capacity could improve system reliability.[110]

(2) Effect on the Natural Environment Compared to Not Building the Facility

91. In the event of a delay, GRE would attempt to meet its needs through increased use of existing facilities. GRE's existing baseload generation facilities are currently running at or close to full capacity and, therefore, could not be utilized to meet this need. GRE's existing natural gas and oil-fired peaking facilities would need to be dispatched more frequently, resulting in higher fuel costs and increased emissions.

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[109] Ex. 1, § 5 and App. B.
[110] Ex. 1, § 5.

Constructing the proposed project would be more efficient than relying on any of GRE's current peaking facilities to provide the same amount of energy.[111]

92. Negative effects on the natural environment include traffic and noise pollution during construction, and noise and air emissions during operation. The environmental effects of the proposed project are subject to the permitting activity of various governmental agencies.[112]

(3) Effects on the Socioeconomic Environment in Inducing Future Development

93. Because the proposed project is a peaking plant, it is not expected to directly induce future development. The rural and suburban service territory of GRE's cooperative members would benefit from the project, however, because the project would permit GRE's cooperative members to continue to supply reliable power to their customers. Reliable and affordable electricity is an important component in supporting stable economic growth in the region.[113]

94. The State of Minnesota and Isanti County would receive income and sales taxes from the construction of the Project.[114] The project would provide approximately 75 skilled craft jobs during peak construction. The Cambridge area will also benefit by the revenues generated during construction and from the two to three additional skilled workers needed to operate the project.[115]

(4) Socially Beneficial Uses of the Output of the Facility

95. The project will provide socially beneficial uses by supplying the member-owners with reliable, relatively low-cost power.

96. With regard to Minn. R. 7849.0120, Item C, GRE has proved by a preponderance of the evidence that the benefits of the proposed facility are compatible with protecting the natural and socioeconomic environments, including human health.

D. Compliance with Policies, Rules and Regulations

97. There is no indication in the record that the design, construction and operation of the Project would fail to comply with relevant policies, rules and regulations of other state and federal agencies and local governments. The issuance of a Certificate of Need would not conflict with any other regulatory requirements.[116]

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[111] Ex. 1, § 5.
[112] Ex. 1, §§ 3.14, 3.20, 3.21, & 3.24.
[113] Ex. 1., § 6.3.
[114] EQB Ex. 3, § 4.5.4; EQB Ex.15, § 6.7.
[115] Ex. 3, § 3.8; Ex. 1, § 2.4.
[116] Ex. 31 (Rakow) at 13-14.

SITE PERMIT

Description of the Plant and Associated Facilities

98. The equipment that would be required for the project is as follows:

- a simple cycle combustion turbine using "F" class technology, such as a Siemens/Westinghouse V84, with a nominal summer capacity of approximately 170 MW under MAPP summertime conditions;
- a generator step-up transformer;
- less than 10,000 feet of transmission line from the transformers to the existing Cambridge Substation;
- a natural gas town border station and meter;
- an evaporative cooler;
- an exhaust stack, approximately 90 feet tall, with silencer;
- two water storage tanks, one to store raw water with capacity of approximately 300,000 gallons, and a demineralized water storage tank with a capacity of approximately 200,000 gallons;
- a mobile water demineralization system, which will recharge the mineral beds off-site;
- a new water retention basin near the south end of the site; and
- an existing warehouse to house the critical parts, tools and supplies needed for maintenance and reliable operations.[117]

99. Natural gas would be delivered to the project via the NNG system. Natural gas would be provided to the plant site by a new 10-inch line off the NNG 16-inch and 12-inch trunk-lines. The new pipeline would be 0.5 miles. A town border station would be constructed at the site, as would a gas metering and conditioning station.[118]

100. One generator step-up transformer would be used to increase the voltage supplied by the project to the substation voltage of 69 kV. The Cambridge substation and the transmission lines that enter the substation would require upgrades as part of the project. In total, GRE expects to upgrade approximately 47 miles of transmission line. The upgrades would consist of reconductoring or rebuilding to meet current state-of-the-art 69-kV design. Details of the interconnection cannot be finalized until MISO completes the interconnection studies and provides a final interconnection recommendation.[119]

101. The proposed project would require raw water only to provide evaporative inlet air cooling and, potentially, wet compression power augmentation to sustain the cooler weather capacity of the combustion turbine during the warmest days of the year. GRE estimates that the proposed unit will operate without using any water more than 80 percent of the time.[120] It would also require water to provide fire protection.

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[117] EQB Ex. 3, §§ 3.1.1, 3.1.4, 3.4, 4.2.2 and Fig. 3-1; EQB Ex. 15, §§ 2.1.1, 2.1.3 and 2.1.4.
[118] EQB Ex. 3, § 3.1.3 and Fig. 3-3; EQB Ex. 15, § 2.1.6; Ex. 30 (Sulzer) at 3.
[119] EQB Ex. 3, § 3.1.2 and Fig. 3-2; EQB Ex. 15, § 2.1.8.
[120] EQB Ex. 3, § 3.1.4 and Fig. 3-4; EQB Ex. 15, § 2.1.3.

102. Two on-site water storage tanks would accommodate water demands.

103. GRE would construct a new well on the Project site south of 349th Avenue NE. The well would likely withdraw water from the Mt. Simon bedrock aquifer. The estimated annual groundwater appropriation for the Project, 108 gpm, is relatively small and is not expected to result in any adverse impacts on the aquifer and regional water supplies. Mt. Simon aquifer wells can produce in excess of 1500 gpm. The City obtains its water from the Mt. Simon aquifer.[121]

104. GRE intends to use treated water for operation of the evaporative cooler during the summer months and potentially for wet compression power augmentation. GRE would use a transportable demineralization unit to treat the raw water. The demineralization beds will be recharged off site; therefore, no on-site wastewater discharge will occur from the demineralization system. An estimated 150,000 gallons of wastewater (compressor wash water) will be generated annually from maintenance of the combustion turbine. This process wastewater would be stored in an on-site tank. The process wastewater will be off-loaded into tanker trucks and hauled to a municipal wastewater treatment plant for ultimate treatment and disposal. The expected wastewater discharge on site are expected to be limited to the approximately 1.8 million gallons from evaporative cooler blow down.[122]

105. GRE plans to dispose of storm water and process wastewater under a new NPDES discharge permit. Storm water drainage patterns from the service building area north of 349th Avenue NE would be unchanged by the project, while storm water from the portion of the site south of 349th Avenue NE would be routed to a new water retention basin constructed near the south end of the site. Process wastewater, consisting primarily of approximately 1.8 million gallons of evaporative cooler blow down water, along with approximately 3 million gallons of storm water runoff, would be routed to the new retention pond. The retention pond would have a controlled outlet that would discharge water to a drainage swale from the south edge of the project site to a wetland located about 300 feet south of the site. GRE will obtain a drainage easement from the adjacent property owner to allow for the discharge through the drainage swale. The wetland discharges to the southwest through an unnamed creek that intersects Beckins Creek about one mile southwest of the site. Beckins Creek discharges to the Rum River about another 1.5 miles downstream.[123]

Statutory and Rule Considerations

106. Minn. Stat. § 116C.57, subd. 4, provides that in determining whether to grant a site permit the Commission shall be guided by the following responsibilities, procedures, and considerations:

[121] EQB Ex. 3, § 4.2.1; EQB Ex. 15, § 2.1.3.
[122] EQB Ex. 3, § 4.2.2; EQB Ex. 15, § 2.1.4.
[123] EQB Ex. 3, § 4.2.2; EQB Ex. 15, § 2.1.4.

(a) Evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;

(b) Environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;

(c) Evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;

(d) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;

(e) Analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;

(f) Evaluation of adverse direct and indirect environmental effects which cannot be avoided should the proposed site and route be accepted;

(g) Evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2;

(h) Evaluation of potential routes which would use or parallel existing railroad and highway rights-of-way;

(i) Evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

(j) Evaluation of the future needs for additional high voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modification;

(k) Evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved;

(l) When appropriate, consideration of problems raised by other state and federal agencies and local entities;

(m) If the board's rules are substantially similar to existing regulations of a federal agency to which the utility in the state is subject, the federal regulations must be applied by the board; and

(n) No site or route shall be designated which violates state agency rules.

107. Minn. Rules pt. 4400.3150 implements the above statutory requirements and requires that the Commission be guided by specified siting and routing considerations. They are as follows:

(a) Effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

(b) Effects on public health and safety;

(c) Effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

(d) Effects on archaeological and historic resources;

(e) Effects on the natural environment, including effects on air and water quality resources and flora and fauna;

(f) Effects on rare and unique natural resources;

(g) Application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

(h) Use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

(i) Use of existing large electric power generating plant sites;

(j) Use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

(k) Electrical system reliability;

(l) Costs of constructing, operating and maintaining the facility which are dependent on design and route;

(m) Adverse human and natural environmental effects which cannot be avoided; and

(n) Irreversible and irretrievable commitments of resources.

108. The application and the Environmental Assessment contain adequate information to allow the Commission to consider these factors.

(a) Effects on Human Settlement

109. In general, the effects on human settlement would be very limited due to the use of a pre-existing plant site in an industrially zoned area. No population displacement or adverse impacts on housing would occur as a direct result of project construction and operation. The nearest residence is 1,300 feet to the southwest of the proposed location of the project.[124]

110. Area aesthetics will not significantly change, because the site is already developed and contains the existing Cambridge Station and its 25 MW fuel oil fired combustion turbine. Although the proposed combustion turbine will be larger than the existing facility, and two new water tanks will be constructed, they will look similar to the existing plant.[125]

111. The upgrade of the 69-kV transmission line in Isanti, Chisago and Kanabec counties would involve changing to taller poles, upgrading wire size and adding lightning protection. The lines would not appear significantly different from existing line configurations.[126]

112. Exterior lighting would be in accordance with the Illuminating Engineering Society Handbook and code requirements.[127]

113. Some construction noise would be unavoidable, but it would be predominantly intermittent and short term. Construction noise impacts should be mitigated by properly muffling construction equipment and limiting activity during nighttime hours.[128]

114. The proposed project would generate additional operational noise, but the combustion turbine would be fitted with equipment to minimize the velocity of air moving into the inlets and with silencers to reduce the noise of the exhaust leaving the stacks. There is currently a high level of low-frequency noise in the area due to busy highways near the site. Considering the existing level of background noise and a negligible increase in noise levels from the combustion turbine, GRE expects no discernable change in noise level to be perceived by the nearest receptors. Id.

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[124] EQB Ex. 3, § 4.4.3 and Fig. 4-1; EQB Ex. 15, § 6.2 and Fig. 2.
[125] EQB Ex. 3, § 4.4.2; EQB Ex. 15, § 6.4.
[126] EQB Ex. 3, § 4.4.2.
[127] EQB Ex. 15, § 6.4.
[128] EQB Ex. 3, § 4.3.

115. There would be increased truck traffic associated with construction in the short-term and GRE operation and maintenance staff in the long-term. The additional traffic would not significantly affect area transportation services.[129]

116. The benefits to the immediate area and beyond would include temporary and permanent job creation; additional property, income and sales tax revenues directly attributable to the project; and the additional assurance that GRE has adequate generating capacity in 2007 and beyond to reliably meet customer demand for electricity.[130]

117. The estimated work force needed to construct the project is approximately 75 skilled craft workers over the 12-month construction period. The State of Minnesota and Isanti County would receive income and sales taxes from the construction of the project. GRE estimates that this project would infuse an estimated $10 million in payroll into the regional economy during the construction phase. The project is expected to require two to three full-time equivalent positions to operate the project, which would result in small additional income tax revenues paid to the State of Minnesota and Isanti County.[131]

118. The project would have no adverse effect on any historical properties in the vicinity of the site.[132]

119. No significant recreational resource exists on or immediately adjacent to the project. There should be no adverse impact on any recreational opportunities.[133]

120. Public services in Cambridge, including water and sewer, waste collection, fire and police, are adequate for the construction and operation of the Project.[134]

(b) Health and Safety

121. The project would not have measurable impacts on public health and safety because emissions will be minimized through the use of clean fuels. There will be no discernable change in the level of noise. Although traffic volumes will increase during the construction phase, additional traffic volumes during normal operation attributable to the project would be minimal.[135]

122. The impacts to ambient air quality are based on modeling using U.S. Environmental Protection Agency-approved dispersion models (ISC3-Prime). Modeling results show that air quality impacts would be below the Potential for Significant Deterioration significance levels for all pertinent air pollutants. The project should not

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[129] EQB Ex. 3, § 4.5.2; EQB Ex. 15, § 6.6.
[130] EQB Ex. 3, §§ 1.1 and 4.5.4; EQB Ex. 15, § 6.7.
[131] Ex. 3, § 3.8, EQB Ex. 3, § 4.5.4; EQB Ex. 15, § 6.7.
[132] EQB Ex. 3, § 4.5.3; EQB Ex. 15, § 6.5.
[133] EQB Ex. 3, § 4.5.1; EQB Ex. 15, § 6.3.
[134] EQB Ex. 15, § 6.11.
[135] EQB Ex. 3, §§ 4.1, 4.3 and 4.5.2; EQB Ex. 15, §§ 6.1 and 6.6.

have significant impact on the air quality, due to the use of clean burning natural gas technology, dry low-NO_X emission control technology and limits on the total emissions.[136]

(c) Land-Based Economies, Including Agriculture, Forestry, Tourism and Mining

123. No effects on land-based economies are expected because the project would be located within the footprint of an existing plant. The area is currently zoned industrial, and the project would not change the land use of the area.[137]

(d) Effects on Archaeological and Historical Resources

124. The project would use existing transmission facilities and an existing plant site. No archeological or historical resources would be affected.[138]

(e) Effects on the Natural Environment

125. Storm water drainage patterns north of 349th Avenue NE would remain unchanged. Storm water drainage south of 349th Avenue NE would be routed into the new water retention basin to be constructed near the south end of the site. Discharge of storm water at the site would be conducted in a manner consistent with federal, state, and local requirements.[139]

126. The Project should have no negative impacts on any wildlife in the area.[140]

127. Simple cycle combustion turbine technology can operate without water, except for that required for fire protection. The project would be capable of using water to provide evaporative inlet air cooling and wet compression power augmentation to sustain the cooler weather capacity of the CT during the warmest days of the year. The estimated groundwater withdrawal rate would be approximately 108 gallons per minute. Evaporative cooling would be used to cool the air entering the units up to about 20 percent of the time.[141]

(f) Effect on Rare and Unique Natural Resources

128. Construction of the CT should not impact the local vegetation of the area.[142] There are several areas of outstanding biodiversity significance that could be affected by the upgrades to the transmission lines. GRE must comply with the recommendations of the Minnesota Department of Natural Resources to mitigate and

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[136] EQB Ex. 3, § 4.1; EQB Ex. 15, § 6.1 and Table 12.
[137] EQB Ex. 3, § 4.4.3; EQB Ex. 15, §§ 6.2 and 6.3.
[138] EQB. Ex. 3, § 4.5.3; EQB Ex. 15, § 5.5.
[139] EQB Ex. 3, § 4.6.2; EQB Ex. 15, § 6.8.
[140] EQB Ex. 3, § 4.6.4; EQB Ex. 15, § 6.3.
[141] EQB Ex. 3, § 3.1.4 and Table 3-1; EQB Ex. 15, § 2.1.3.
[142] EQB Ex. 3, § 4.6.3; EQB Ex. 15, § 6.3.

minimize these impacts.[143] In all other locations, the disturbance will be limited to pole replacement and will be minimal.[144]

(g) Design Options That Maximize Energy Efficiency, Mitigate Environmental Effects, Accommodation of Expansion

129. The unit proposed for this project is relatively large with good efficiency characteristics. It is large enough to take advantage of scale economies within a single unit. The size of the project maximizes the value of technological efficiencies, land use, and the transmission system.[145] A simple cycle combustion turbine is the most appropriate generation technology for the peaking service need the project is intended to address. Overall power supply costs are minimized when a low capital cost resource like combustion turbines are used in peaking service. Peaking service also requires flexibility in operation, particularly rapid and frequent startups and short-duration runs.[146]

130. The project incorporates several features to minimize potential adverse environmental effects associated with the construction and operation. These include design features, specific resource protection measures, construction constraints and controls, and operational programs.[147] For example:

- The predicted low noise levels result from use of the best available noise control technology, including diffusers on the air inlet of the combustion turbines and silencers on the stack to minimize the impact of any noise.

- The project will be constructed to look like the existing plant, exterior lighting will meet code requirements, and night-time security lighting will point downward and inward.

- GRE will require its contractor to apply for and comply with a construction storm water permit under the MPCA's NPDES Stormwater Permit Program for Construction Activities.

- The combustion turbine uses clean-burning natural gas technology, dry low- and NO_X emission control technology, which limits total emissions and reduces the impact on air quality and substantially reduces water consumption.

131. The project site cannot accommodate future expansion without acquisition of additional property or removal of the existing 25 MW turbine. GRE currently has no plans for further expanding generating capacity at the proposed site.[148]

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[143] Ex. 47.
[144] EQB Ex. 3, § 4.6.3.
[145] EQB Ex. 3, § 3.
[146] Ex. 1, § 3.
[147] EQB Ex. 3, §§ 4.3, 4.1 and 3.1.4; EQB Ex. 15, §§ 6.4, 3.5, 6.1 and 2.1.3.
[148] EQB Ex. 3, § 2.4.

(h) Use or Paralleling of Existing Rights-of-Way, Survey Lines, Natural Divisions Lines, and Agricultural Field Boundaries

132. The project would use existing 69-kV transmission facilities. No new rights-of-way are required, except as required by county mandates to accommodate future road relocations.[149]

(i) Use of Existing Large Electric Power Generating Plant Sites

133. The project would use an existing plant site near Cambridge in Isanti County.[150]

(j) Use of Existing Transportation, Pipeline, and Electrical Transmission Systems or Rights-of-Way

134. The project would use existing 69-kV transmission facilities. No new rights-of-way are required, except as required by county mandates to accommodate future road relocations.[151]

(k) Electrical System Reliability

135. GRE needs the proposed project to meet the peak demand needs of its members and their owner/customers. In addition, the transmission improvements associated with the project will help improve transmission system reliability.[152]

(l) Costs of Constructing, Operating and Maintaining the Facility Which Are Dependent on Design and Route

136. GRE evaluated nine sites for the proposed combustion turbine. Based on considerations of transmission, natural gas supply, land use, water availability, wastewater disposal, transportation infrastructure, local support, economics and environmental impacts, two sites were selected for further consideration—the Cambridge site and GRE's headquarters in Elk River. Ultimately the Cambridge site was selected, with the primary differentiating factor being lower overall cost.[153]

(m) Adverse Human, Natural and Environmental Effects Which Cannot be Avoided as a Result of Construction and Operation of the Plant

137. There should be no significant adverse human, natural and environmental effects from the project.[154]

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[149] *See* EQB Ex. 3, § 3.1.2 and Fig. 3-2; EQB Ex. 15, § 2.1.8.
[150] EQB Ex. 15, Section 2.1 and Fig. 1.
[151] *See* EQB Ex. 3, § 3.1.2 and Fig. 3-2; EQB Ex. 15, § 2.1.8.
[152] Ex. 1, § 2.4.
[153] EQB Ex. 15, § 4.9.
[154] EQB Ex. 3, § 4.

(n) Irreversible and Irretrievable Commitments of Resources

138. There should be no irreversible or irretrievable commitments of resources.

Exclusions Which Must be Avoided Under the Minnesota Rules for Power Plant Siting

139. The project would be located within the footprint of an existing plant in an industrially zoned area and, therefore, does not involve any of the exclusions identified under Minn. Rule 4400.3450, subps. 1, 3, and 4.[155]

Based on the foregoing Findings of Fact, the Administrative Law Judge makes the following:

CONCLUSIONS

1. The Minnesota Public Utilities Commission has jurisdiction over this matter, pursuant to Minn. Stat. §§ 216B.08, 216B.243 and 116C.06.

2. All relevant procedural requirements of law and rule have been fulfilled.

3. Based on GRE forecasts as supplemented by actual data for 2003 and 2004, there is a need for the proposed project.

4. Increasing planned conservation efforts is not a cost-effective alternative to the project.

5. GRE does not significantly promote electricity consumption in Minnesota.

6. Current and planned facilities not requiring certificates of need and purchased power are not adequate to meet projected needs.

7. The project will make efficient use of existing resources for transmission, pipelines, and land use.

8. Denial of the Certificate of Need to GRE would likely have an adverse effect upon the future adequacy, reliability and efficiency of energy supply to GRE, to the member cooperatives that GRE serves, and to the people of Minnesota and neighboring states.

9. Considering the size, type, timing, costs, natural and socioeconomic environmental effects, and reliability, a more reasonable and prudent alternative to the project has not been demonstrated by a preponderance of the evidence on the record.

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[155] EQB Ex. 3, § 4.4.

10. The project will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health.

11. The record does not demonstrate that the design, construction, or operation of the project will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

12. GRE has demonstrated that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the project is less expensive (including environmental costs) than power generated by a renewable energy source.

13. An innovative energy project would not be the best resource to meet the need identified in this proceeding.

14. GRE's application satisfies the requirements for a Certificate of Need set forth in Minn. Stat. § 216B.243 and Minn. Rules Ch. 7849.

15. GRE's proposed site is acceptable under the provisions of Minn. Stat. § 116.57, subd. 4, and Minn. Rules 4400.3150.

Based on the foregoing Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATIONS

1. That the Commission grant GRE's application for a Certificate of Need for a 170 MW simple-cycle combustion turbine large electric power generating plant without condition.

2. That the Commission issue a Site Permit for the 170 MW simple-cycle combustion turbine large electric power generating plant to be located as proposed by GRE with any appropriate conditions.

Dated this 3rd day of October, 2005

KATHLEEN D. SHEEHY
Administrative Law Judge

NOTICE

Under Minn. Stat. § 14.62, subd. 1, the agency is required to serve its final decision upon each party and the Administrative Law Judge by first class mail or as otherwise provided by law.

MEMORANDUM

Mankato Energy raised two issues concerning GRE's 2005 IRP: whether GRE should use an independent evaluator in future RFP settings and whether GRE should have used actual rather than generic data in its 2005 IRP. When GRE moved to strike this testimony during the hearing, the Administrative Law Judge denied the motion in order to permit Mankato Energy to develop the record on these issues, but permitted GRE to respond. After review of the record and further consideration, the Administrative Law Judge has concluded that these issues are not related to whether a certificate of need or site permit should be issued, and they are more appropriately raised in the docket addressing GRE's 2005 IRP.

K.D.S.